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Previous experiments have shown that low density grower diets can more economically produce layer-type pullets without affecting their subsequent reproductive performance. Generally, weight gain during the 8- to 20-week grower phase is not affected by these diets, while feed efficiency is somewhat reduced. This report shows the reproductive performance data for the hens from last year's grower study in which the low density type diets were used.

Six replicates of 12 24-week-old pullets from each of three commercial strains were housed at the rate of four birds per 16-inch cage and fed one of two layer diets (Table 1). Performance data were collected for 13 28-day periods.

Table 2 shows some of the production data for the completed reproductive cycle. Grower diets had no effects on subsequent egg production, feed utilization or final body weight. Strain differences were noted for most parameters measured, while the 12% protein diet supported 4% less production than the 16% protein diet.

Table 3 shows the body weight, mortality and some of the liver data for this experiment. No definite trends could be noted due to grower diet for these parameters. The 12% layer diet reduced weight gain and mortality, while it had no effect on liver fat accumulation. Larger differences were noted between strains, with strains 2 and 3 gaining less weight and strain 3 having less mortality. This decreased mortality could partially be attributed to less fat accumulation and the resulting low level of fatty liver hemorrhagic syndrome (Table 4) for strain 3.

These data confirm previous observations that low density grower diets are quite satisfactory for subsequent egg production. There was no need for supplementation with methionine and lysine in these diets. Although a 12% protein layer diet supported about 4% less production than a 16% protein diet, there could be times when 12% protein would be most economical.

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Table 1. Composition of Layer Diets Used in Caged Hen Experiment

	Treatments	
	16% protein	12% protein
Corn	66	81
SBM, 48%	20	9
Alfalfa meal, 17%	2	2
Dicalcium phosphate	2	1.5
Limestone	5	5
Salt mix	.5	.5
Vitamin mix	.5	.5
Yellow grease	4.0	--
DL-methionine	--	.15
L-lysine	--	.20

Table 2. Effect of Dietary Regime on Egg Production and Feed Efficiency

Treatment	Hen-day production[1]	Feed per day	Feed per dozen eggs	Average egg weight
	(%)	(g.)	(kg.)	(g.)
Grower diet[2]				
1	65.4	99.2	1.82	63.1
2	65.3	98.5	1.80	62.8
3	65.3	98.9	1.81	62.7
4	66.5	99.7	1.80	62.5
Strain				
1	63.4c[3]	102.9a	1.97a	62.9
2	67.9a	98.3b	1.72b	62.6
3	65.6b	96.1c	1.74b	62.8
Layer diet				
16%	67.5a	98.2b	1.73b	63.1a
12%	63.7b	99.9a	1.88a	62.4b

[1] Thirteen 4-week periods.
[2] Treatment 1 = 12% protein, 2800 kcal. M.E./kg. (8-20 weeks).
Treatment 2 = As 1 + 0.13% DL-methionine.
Treatment 3 = As 2 + 0.27% L-lysine.
Treatment 4 = 12% protein, 2975 kcal. M.E./kg.
[3] Means with different subscripts were significantly different at the 5% level.

Table 3. Effect of Dietary Regime on Hen Weight, Mortality and Liver Fat Accumulation

Treatment	Final body weight (kg.)	Hen-housed mortality (%)	Liver fat	
			As received (%)	Total (g.)
Grower diet[1]				
1	1.77	14.4	11.4	5.2
2	1.79	16.2	13.0	5.9
3	1.77	14.6	9.3	4.0
4	1.79	12.8	11.6	6.2
Strain				
1	1.84[a2]	17.8	13.1	6.1
2	1.76[b]	16.3	12.5	5.8
3	1.75[b]	9.4	8.4	3.4
Layer diet				
16%	1.82[a]	16.0	11.4	5.3
12%	1.75[b]	13.0	11.2	5.0

[1] See Table 2.
[2] Means with different superscripts were significantly different at P<.01.

Table 4. Causes of Mortality by Strain[1]

	Strain		
	1	2	3
Leukosis	19.6	7.4	36.0
Cannibolism	30.4	53.7	8.3
FLHS	6.5	16.7	0.0
Reproductive	15.2	13.0	16.7
Other	28.3	7.4	38.9

[1] As diagnosed by the SDSU Animal Disease Research and Diagnostic Laboratory.